

WHAT IS CLAIMED IS:

1. An image forming apparatus, comprising:
 - an electrostatic latent image carrier capable of carrying an electrostatic latent image for at least two pages;
- 5 an electrostatic latent image-forming unit that forms the electrostatic latent image on the electrostatic latent image carrier according to image data of each color;
- 10 a plurality of developing units that develop the electrostatic latent image on the electrostatic latent image carrier by a developer of each color to form a mono-color developer image according to each color;
- 15 an intermediate transfer body onto which mono-color developer images of respective colors formed by the plurality of developing units are transferred successively so as to be superposed on one another to form a multi-color developer image;
- 20 a transfer unit that transfers the multi-color developer image formed on the intermediate transfer body onto a recording medium; and
- 25 a simultaneous printing unit configured to form an electrostatic latent image for two pages and a mono-color developer image for two pages continuously on the electrostatic latent image carrier, to transfer the mono-color developer image for two pages successively onto the intermediate transfer body to make the intermediate transfer body carry a multi-color developer image for two pages, and to transfer the multi-color

developer image for two pages onto two sheets of recording media by the transfer unit to form two multi-color images including a first multi-color image and a second multi-color image;

wherein the simultaneous printing unit includes a
5 simultaneous printing image data generating unit configured to generate image data of each color for simultaneous printing so that a variety of colors of image data for forming the first multi-color image coincide with a variety of colors of image data for forming the second multi-color image, when a variety 10 of colors of developers required for forming the first multi-color image are different from a variety of colors of developers required for forming the second multi-color image.

2. The image forming apparatus according to claim 1,
15 wherein the simultaneous printing image data generating unit generates image data of each color for forming the first multi-color image so that image data of a color not actually contained in the variety of colors of image data for forming the first multi-color image but actually contained in the variety 20 of colors of image data for forming the second multi-color image is generated as dummy data in addition to actual image data of the variety of colors required for forming the first multi-color image; and

the simultaneous printing image data generating unit
25 generates image data of each color for forming the second

multi-color image so that image data of a color not actually contained in the variety of colors of image data required for forming the second multi-color image but actually contained in the variety of colors of image data for forming the first 5 multi-color image is generated as dummy data in addition to actual image data of the variety of colors required for forming the second multi-color image.

3. The image forming apparatus according to claims 1, further 10 comprising:

an ordinary printing unit configured to form an electrostatic latent image for one page and a mono-color developer image for one page on the electrostatic latent image carrier, to transfer the mono-color developer image 15 successively onto the intermediate transfer body to make the intermediate transfer body carry a multi-color developer image, and to transfer the multi-color developer image for one page onto one sheet of a recording medium to form a multi-color image; and

20 a comparison unit configured to compare the number of operations of transferring a mono-color developer image from the electrostatic latent image carrier onto the intermediate transfer body in the case where two multi-color images are generated by simultaneous printing, with the number of 25 operations of the transferring in the case where two multi-color

images are generated by ordinary printing;

wherein, when the variety of colors of developers required for forming the first multi-color image are different from the variety of colors of developers required for forming the second 5 multi-color image, the simultaneous printing image data generating unit generates image data of each color for simultaneous printing and the simultaneous printing unit performs simultaneous printing if the comparison unit makes a decision that the number of transferring operations in the 10 simultaneous printing is smaller than the number of transferring operations in the ordinary printing.

4. The image forming apparatus according to claim 3,

wherein the comparison unit calculates the number of 15 transferring operations in the ordinary printing as the sum of the number of colors of developers required for forming the first multi-color image and the number of colors of developers required for forming the second multi-color image; and the comparison unit calculates the number of transferring 20 operations in the simultaneous printing as a value obtained by subtraction of the number of duplicate colors between the variety of colors of developers required for forming the first multi-color image and the variety of colors of developers required for forming the second multi-color image from the sum 25 of the number of colors of developers required for forming the

first multi-color image and the number of colors of developers required for forming the second multi-color image.

5. The image forming apparatus according to claim 3,
5 wherein the ordinary printing unit performs ordinary printing when the comparison unit compares the number of transferring operations in the ordinary printing with the number of transferring operations in the simultaneous printing and makes a decision that the two numbers are equal to each other.

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6. The image forming apparatus according to claim 3,
wherein the comparison unit adds the number of operations of idly rotating the intermediate transfer body to the number of transferring operations in the ordinary printing when the 15 ordinary printing unit idly rotates the intermediate transfer body before the second multi-color developer image is carried on the intermediate transfer body after the first multi-color developer image is transferred on the recording medium.

20 7. An image forming apparatus comprising:

an electrostatic latent image carrier capable of carrying an electrostatic latent image for at least two pages;
a storage unit configured to store image data of each color for at least two pages;

25 an electrostatic latent image-forming unit that forms

the electrostatic latent image on the electrostatic latent image carrier according to the image data of each color;

5 a plurality of developing units for developing the electrostatic latent image on the electrostatic latent image carrier by a developer of each color to form a mono-color developer image according to each color;

10 an intermediate transfer body onto which mono-color developer images of respective colors formed by the plurality of developing units are transferred successively so as to be superposed on one another to form a multi-color developer image;

a transfer unit that transfers the multi-color developer image formed on the intermediate transfer body onto a recording medium; and

15 a simultaneous printing unit configured to form an electrostatic latent image for two pages and a mono-color developer image for two pages continuously on the electrostatic latent image carrier, to transfer the mono-color developer image for two pages successively onto the intermediate transfer body to make the intermediate transfer body carry a multi-color developer image for two pages, and to transfer the multi-color developer image for two pages onto two sheets of recording media by the transfer unit to form two multi-color images including a first multi-color image and a second multi-color image;

20 wherein the simultaneous printing unit includes a simultaneous printing image data generating unit configured

to generate image data of each color for simultaneous printing on the basis of a variety of colors of developers required for forming the first multi-color image and a variety of colors of developers required for forming the second multi-color image.

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8. An image forming apparatus comprising:

an electrostatic latent image carrier capable of carrying an electrostatic latent image for at least two pages;

a storage unit configured to store image data of each 10 color for at least two pages;

an electrostatic latent image-forming unit that forms the electrostatic latent image on the electrostatic latent image carrier according to the image data of each color;

a plurality of developing units for developing the 15 electrostatic latent image on the electrostatic latent image carrier by a developer of each color to form a mono-color developer image according to each color;

an intermediate transfer body onto which mono-color developer images of respective colors formed by the plurality 20 of developing units are transferred successively so as to be superposed on one another to form a multi-color developer image;

a transfer unit that transfers the multi-color developer image formed on the intermediate transfer body onto a recording medium; and

25 a simultaneous printing unit configured to form an

electrostatic latent image for two pages and a mono-color developer image for two pages continuously on the electrostatic latent image carrier, to transfer the mono-color developer image for two pages successively onto the intermediate transfer body

5 to make the intermediate transfer body carry a multi-color developer image for two pages, and to transfer the multi-color developer image for two pages onto two sheets of recording media by the transfer unit to form two multi-color images including a first multi-color image and a second multi-color image;

10 wherein the simultaneous printing unit generates additional data to be added to the image data of each color stored in the storage unit on the basis of a variety of colors of developers required for forming the first multi-color image and a variety of colors of developers required for forming the 15 second multi-color image;

the simultaneous printing unit generates image data of each color for simultaneous printing by adding the additional data to the image data of each color stored in the storage unit; and

20 the electrostatic latent image-forming unit forms the electrostatic latent image on the electrostatic latent image carrier according to the image data of each color for simultaneous printing.

25 9. An image forming method comprising:

forming an electrostatic latent image for two pages on an electrostatic latent image carrier;

developing the electrostatic latent image for two pages on the electrostatic latent image carrier by a developer of 5 each color to form a mono-color developer image for two pages of each color;

transferring the mono-color developer image for two pages of respective color repeatedly on an intermediate transfer body to form a multi-color developer image for two pages on the 10 intermediate transfer body;

transferring the multi-color developer image for two pages formed on the intermediate transfer body onto two sheets of recording media to form two multi-color images including a first multi-color image and a second multi-color image;

15 wherein the forming step includes:

generating image data of each color for two pages for simultaneous printing so that a variety of colors of image data for forming the first multi-color image coincide with a variety of colors of image data for forming the second multi-color image, 20 when a variety of colors of developers required for forming the first multi-color image are different from a variety of colors of developers required for forming the second multi-color image; and

forming the electrostatic latent image for two pages on 25 an electrostatic latent image carrier on the basis of the image

data of each color for two pages for simultaneous printing.